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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/994,188	11/26/2001	Nasreen Gazala Chopra	10010188-1	8737

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EXAMINER	
KIKNADZE, IRAKLI	

ART UNIT	PAPER NUMBER
2882	

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/994,188	CHOPRA ET AL.	
	Examiner	Art Unit	
	Irakli Kiknadze	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 January 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,5,13-20 and 35-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *5,15,16,18-20 and 35-37* is/are allowed.

6)☒ Claim(s) *2,13 and 14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. In response to the Office action dated October 6, 2005 the Amendment has been received on January 3, 2006.

Claims 2 and 15 have been amended.

Claims 2, 5, 13-16, 18-20 and 35-37 are currently pending in this application.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 2, 13 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Regarding claim 2, the phrase "suitable" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed, thereby rendering the scope of the claim(s) unascertainable. Claims 13 and 14 are rejected by virtue of their dependency.

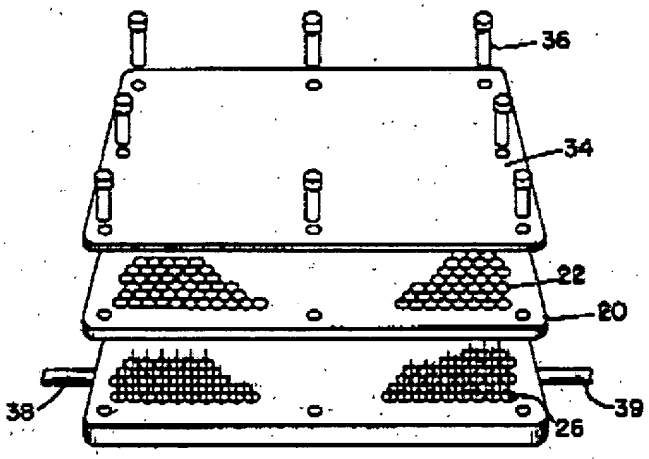
Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

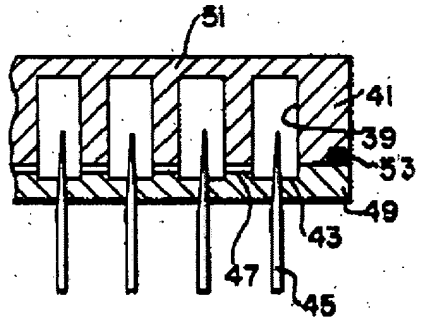
6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Spergel et al. (US Patent 3,418,474) in view of Beyne et al. (US Patent 6,362,484).

With respect to claim 2, as understood by examiner, Spergel teaches an imaging system (Figs. 1-4) comprising: a substrate (24); and a gas detector formed on the substrate (24) comprising a first detection circuit corresponding to a first chamber and a second detection circuit corresponding to a second chamber, the first detection circuit provides a first signal indicative of an intensity of a first portion of x-rays radiating into the first chamber, the second detection circuit provides a second signal indicative of an intensity of a second portion of x-rays concurrently radiating into the second chamber, the first portion of x-rays being different than the second portion of x-rays (see abstract of the disclosure; column 1, lines 14-21), and wherein an x-ray stopping component (a medial plate (20) having therethrough a plurality of openings (22) and made from a heavy metal such as lead) is arranged between the first and second chambers, the x-ray stooping component operative to absorb off-axis photons (column 2, lines 38-70; column 3, lines 15-30 and 55-75; column 4, lines 14-30).



F I G. 1

The alternative detector arrangement is shown in Fig.3, comprising the substrate (49), and individual chambers defined by the apertures (39) drilled partially through a plate (41) and the seats (43). A suitable static or flowed gas for the chambers is provided in the substrate (49) through the communicating ports (47).



F I G. 3

Spergel fails to teach that the substrate (24) is a semiconductor substrate. Beyne teaches an x-ray imaging system

comprising: a gas detector (1) formed on a semiconductor substrate (10) (Fig.3)

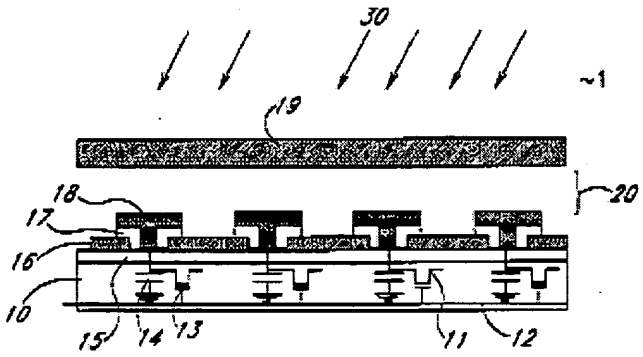


FIG.3

(column 5, line 57-column 6, line 7).

the gas detector (1) comprises a plurality of discrete pixel anodes (18) arranged in a form of an array arranged as to shield transistors in an electronic circuitry (11-14) from direct x-ray radiation (column 4, lines 39-44; column 5, line 57-column 6, line 7; column 10, lines 19-25). Each anode (18) of the gas detector array is connected to an electronic measuring device such as a digital counter, as well as a pixel readout switching means, e.g. a transistor or transistors, within or on the semiconductor wafer at the back of the detector array. Each electronic measuring device, such as digital counter, storage capacitor, and pixel readout transistors is shielded by an anode (18) from x-rays (column 11, lines 11-19). In this arrangement the gas detector (1) can be used as digital gas detector. That is, the gas detector (1) can be used to provide information to an associated digital processor that converts the signals to image data. The image data then can be rendered to produce a digital x-ray image or series of real-time x-ray images. It would have been obvious to on of the ordinary skill in the art at the time the invention was made to substitute plastic substrate plate (24) with the semiconductor substrate on which the gas detector is formed as suggested by Beyne in the system of

Spergel, since such a modification would provide user with the digital x-ray gas detector capabilities providing information to the associated digital processor that converts the signals to image data for enhanced real-time visual interpretation of the x-ray images.

7. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spergel et al. (US Patent 3,418,474) and Beyne et al. (US Patent 6,362,484 B1) as applied to claim 2 above, and further in view of McDaniel (US Patent 4,780,897).

With respect to claim Spergel as modified by Beyne teaches the claimed invention except for means for changing a pressure of the volume of gas and means for exchanging the gas from one gas to different gas. McDaniel teaches an X-ray detector using two different gases (ion sources) at different pressures, wherein the tapes of gasses (e.g. Krypton and Xenon) and the pressures could optimally be selected to pass higher energy X-rays an/or to allow interact with lower energy X-rays for producing desirable X-ray image (column 12, lines 15-26). It would have been obvious to one ordinary skill in art at the time invention was made to provide means for changing the operating characteristics of the gas in the detector as suggested McDaniel in the X-ray imaging system of Spergel as modified by Beyne to optimize the imaging capabilities of the system.

Allowable Subject Matter

8. Claims 5, 15, 16, 18-20 and 35-37 are allowed.

9. The following is a statement of reasons for the indication of allowable subject matter:

With respect to claims 5 and 35 prior art fails to teach or make obvious an imaging system and a pixilated gas detector comprising a first and a second gas reservoir pneumatically communicating with the a first chamber such that gas from either the first or the second gas reservoir can be selectively provided to the first chamber as claimed in combination with all elements of claims 5 and 35. Claims 36 and 37 are allowable by virtue of their dependence.

With respect to claim 15 prior art fails to teach or make obvious an x-ray imaging method comprising steps of using a semiconductor fabrication technique to form on a provided substrate, a first chamber, a second chamber and an x-ray stopping component between the first and second chamber including all the limitations of claim 15. Claims 16 and 18-20 are allowable by virtue of their dependence.

Response to Arguments

10. Applicant's arguments with respect to claims 2-13 and 14 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments, see pages 5-9, filed January 3, 2006, with respect to Claims 15, 16 and 18-20 have been fully considered and are persuasive. The rejection of claims 15, 16 and 18-20 has been withdrawn.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irakli Kiknadze whose telephone number is 571-272-2493. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on 571-272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Irakli Kiknadze
March 27, 2006
IK

EDWARD J. GLICK
SUPERVISORY PATENT EXAMINER